Chapter

7

Construction/ Demolition/Debris

Construction/Demolition/Debris - Current City of Falls Church Management System, Anticipated Gaps in Waste Management, and SWMP Actions

This chapter presents the process used by the City to evaluate the current SWM system, project the future waste stream, identify anticipated gaps in waste management, and select SWMP actions for CDD.

This chapter presents the evaluation of the City's current and projected solid waste management (SWM) activities for construction/ demolition/debris (CDD), organized by the SWM hierarchy. It uses the hierarchy as the framework for determining how to bridge the gaps between the current SWM activities and the strategies needed to manage the City's CDD in the future. The chapter then presents the City's SWMP actions for CDD over the next 20 years to address those gaps.

Using the SWM hierarchy, the City of Falls Church staff worked in cooperation with the Solid Waste Management Plan Advisory Committee (SWMPAC) to evaluate current SWM practices, including source reduction and reuse initiatives, recycling activities and programs, future markets for recyclables, collection operations, transfer facilities, and characteristics of solid waste disposal facilities. Next, the City reviewed the current and future projections of its solid waste stream quantities over the SWMP planning period. Using these projections, the City assessed the changes in the solid waste stream over the planning period and identified the critical areas requiring modification. Finally, the City selected SWMP actions that will close the gaps between its current SWM system and that required in the future.

Overview of the 20-Year Plan for the City's CDD Management System

The City's current SWM programs and activities for CDD, the gaps in waste management, and SWMP actions over the SWMP planning period are summarized in Table 7-1. This table is organized by level of the waste hierarchy, from source reduction and reuse, to recycling, collection, transfer, and disposal. (Note that private companies are responsible for many of the activities in the current and future system.)

Table 7-1. CDD: Current Waste Management Activities, Anticipated Gaps in Waste Management, and SWMP Actions

	Current Programs in the City	Anticipated Gaps	SWMP Actions
Source reduction and reuse	– No existing source reduction and reuse initiatives targeted specifically for CDD	– Up to additional 1,200 tons of CDD generated in the City of Falls Church	– Improve public outreach and education to promote source reduction and reuse – Implement source reduction and reuse programs at City government facilities and schools – Monitor and publicize waste generation
Recycling	– No existing recycling initiatives targeted specifically for CDD	– CDD recycling practices are currently not well established	– Promote public-private recycling programs – Improve public outreach and education to promote recycling – Encourage increased CDD recycling – Participate in regional promotion of CDD recycling
Collection	– CDD collection services provided by privately-owned firms	– Up to additional 1,200 tons per year of CDD collection by 2025 – May require additional CDD collection vehicles and labor	– Promote use of special fuels, filters, and special vehicles for collection – Implement a collection and disposal strategy for emergencies
Transfer	– Most CDD is transported directly to private disposal facilities – A small portion of City CDD may be handled at the Fairfax County I-66 Transfer Station	– None	– Continue using the current transfer system
Disposal	– Three private CDD landfills in Fairfax County: Hilltop Sand & Gravel Co. Debris Landfill, Lorton CDD Landfill, and Rainwater Concrete Co. Landfill – Other regional CDD landfills	– Annual disposal tonnage increases from current 730,000 tons to up to 924,000 tons by 2025 – Need between 18 and 21 million tons cumulative CDD landfill capacity until 2025 – May exceed CDD landfill capacity around 2011	– Continue using current disposal system as the preferred alternative – Establish agreements with other jurisdictions for alternative disposal

Source Reduction and Reuse

The City of Falls Church has no existing source reduction or reuse initiatives targeted specifically for CDD.

Current Programs

The City of Falls Church has no existing source reduction or reuse initiatives targeted specifically for CDD.

Assessment of Current and Future Source Reduction and Reuse Needs

Calculating the quantities of solid waste that are reduced prior to entering the waste stream is problematic. Therefore, the City does not develop source reduction and reuse projections for solid waste.

The City of Falls Church follows the solid waste hierarchy in designing its SWM system. The City prefers source reduction followed by reuse and recycling to disposal of solid waste. The SWM Program goal is to implement new programs that will maximize the volume of solid waste handled by source reduction and reuse over the SWMP planning period.

SWMP Actions

Table 7-2 shows the City's SWMP actions for the source reduction and reuse of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

Table 7-2. City of Falls Church CDD Source Reduction and Reuse SWMP Actions

CDD Source Reduction and Reuse SWMP Actions
– Improve public outreach and education to promote source reduction and reuse
– Implement City source reduction and reuse programs at City government facilities and schools
– Monitor and publicize waste generation

Recycling

The City of Falls Church currently has no recycling initiatives targeted specifically for CDD.

Current Programs

The City of Falls Church has no existing recycling programs or activities specifically targeted for CDD. Some City-generated CDD may be recycled at the Potomac CDD Landfill in Dumfries.

No data are available on the quantities of CDD recycled in the City of Falls Church, but statewide data are available. CDD recycling data reported to the VDEQ suggest that CDD recycling in Virginia is low,

ranging from less than 1 percent to 3.25 percent of CDD materials between 1998 and 2002. CDD recycling rates in Virginia have been decreasing: between 1998 and 2002, the recycling of CDD materials decreased by more than 64 percent.[1]

Recycling Markets

Economics is at the core of all recycling collection decisions. Recycling plans must focus on the costs and benefits of current, new, and future programs. Although recycling specific material may benefit the environment, the economic cost is sometimes an obstacle for a municipality, which has little chance of affecting the markets for these materials. Therefore, focusing on materials for which strong markets already exist is critical.

The economic viability of recycling is based on four factors: (1) the cost savings from eliminating disposal, (2) the revenue from selling recyclable materials, (3) the cost of transporting recyclable materials, and (4) the cost of processing recyclables. The economic viability of recycling may increase with higher alternative disposal costs, stronger local markets for recyclable materials, shorter transportation distances to markets, and more efficient processing of recyclables.

Low CDD recycling rates are likely the result of inexpensive disposal and relatively high processing costs.

Table 7-3 presents the values of recyclables from the National Association of Home Builders in 2000. The cost to recycle the most common CDD material (wood) is often more expensive than the cost of its disposal. The economics for recycling of other CDD materials make it more viable to recycle those materials.

Table 7-3. Value of CDD Recyclables, 2000 ($/ton)

Recyclable	Cost	Revenue
Wood	20	—
Drywall	13	—
Ferrous metals	—	40
Vinyl	—	100
Aluminum	—	600

Assessment of Current and Future Recycling Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated in the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

[1] Northern Virginia Solid Waste Management Board, *Summary of Construction and Demolition Debris Landfills in Northern Virginia*, September 12, 2003.

The City of Falls Church projects annual CDD recycling quantities will remain low, *assuming the continuation of the City's current management practices and conditions.*

The City projects annual CDD recycling quantities will mirror the projected changes in CDD generation (i.e., from a decrease of 7 percent to an increase of 15 percent). CDD recycling practices are not yet well established in the City; therefore, ***assuming the continuation of the City's current management practices and conditions***, future CDD recycling quantities are projected to be a small percentage of the total generation volume.

SWMP Actions

Table 7-4 shows the City's SWMP actions for CDD recycling. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

Table 7-4. City of Falls Church CDD Recycling SWMP Actions

CDD Recycling SWMP Actions
– Promote public-private recycling programs
– Improve public outreach and education to promote recycling
– Encourage increased CDD recycling
– Participate in regional promotion of CDD recycling

Collection

Current Programs

Privately owned collection firms operating in the City provide CDD collection services in the City of Falls Church. Construction firms are responsible for procuring CDD collection containers (e.g., dumpsters) and services at their building sites. Most companies collect CDD from the construction sites for transport directly to a CDD disposal facility.

Assessment of Current and Future Collection Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated in the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

Collection of CDD includes both recyclable materials and waste destined for disposal. Table 7-5 shows the projected quantities of CDD collected in the City over the SWMP planning period for the two projection alternatives. ***(Note that these projections assume the continuation of***

The City projects annual CDD collection quantities to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025, *assuming continuation of current waste management practices.*

the City's current management practices and conditions.) The City projects annual CDD collection to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025.

Table 7-5. CDD Collection Projections for the City of Falls Church 2004-2025 (tons)

Year	Alternative 1	Alternative 2
2004	7,975	7,816
2005	8,009	7,771
2010	8,538	7,878
2015	8,764	7,691
2020	8,991	7,503
2025	9,142	7,255

The City's SWM collection system may handle up to an additional 1,200 tons per year of CDD by 2025.

The City projects that the current CDD collection system may handle up to an additional 1,200 tons per year by 2025. Therefore, the existing collection system may have to expand to meet the increased quantities.

SWMP Actions

Table 7-6 shows the City's SWMP actions for the collection of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

Table 7-6. City of Falls Church CDD Collection SWMP Actions

CDD Collection SWMP Actions
– Promote use of special fuels, filters, and special vehicles for collection
– Implement a collection and disposal strategy for emergencies

Transfer

Current Programs

Most City-generated CDD is directly hauled to privately-owned landfills outside the City of Falls Church.

Most CDD generated in the City is directly hauled to privately owned landfills outside the City.

A small percentage of City-generated CDD may be managed at Fairfax County's I-66 Transfer Station; Chapter 6 provides a more detailed discussion of the I-66 Transfer Station operations. Operators at the Transfer Station attempt to direct incoming loads that

may contain CDD to specific bays for disposal. CDD waste processing is typically completed in designated bays at the facility; the waste is hauled in county trailers to one of the CDD landfills.

Assessment of Current and Future Transfer Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated in the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

The City projects annual CDD quantities managed at transfer facilites (outside the City) to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025, *assuming continuation of current waste management practices.*

Currently, most CDD generated in the City of Falls Church is sent directly to CDD landfills outside the City; a small percentage of City-generated CDD may be managed at transfer facilities outside the City, including Fairfax County's I-66 Transfer Station.

The City projects annual CDD transfer quantities will mirror the projected changes in CDD generation (i.e., from a decrease of 7 percent to an increase of 15 percent). CDD transfer quantities represent a small percentage of City-generated CDD; therefore, ***assuming the continuation of the City's current management practices and conditions***, future CDD transfer quantities are projected to be a small percentage of the total generation volume.

SWMP Actions

Table 7-7 shows the City's SWMP actions for the transfer of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

Table 7-7. The City of Falls Church CDD Transfer SWMP Actions

CDD Transfer SWMP Actions
– Continue using the current transfer system

Disposal

Current Programs

CDD Landfills

City-generated CDD is primarily disposed of at five CDD landfill facilities located outside the City: Hilltop Sand and Gravel Company Debris Landfill (Newington), Lorton CDD Landfill (Lorton), Rainwater Concrete Company

Landfill (Lorton), Potomac Landfill (Dumfries), and the Fauquier County Corral Farm MSW Landfill (Warrenton). These CDD landfills are owned and operated by private vendors, with the exception of the Corral Farm Landfill (owned and operated by Fauquier County). The private CDD landfills accept material from a wide area, including out-of-state sources.

Most CDD is transported directly from the generation site to the landfill.

Capacity and Availability

VDEQ estimates that the average remaining capacity of the five CDD landfills that receive City of Falls Church waste is roughly 6 years and of all CDD landfills in Virginia is roughly *7.7* years.

At current disposal rates, VDEQ data suggest that for the five CDD landfills that receive City of Falls Church waste, the average remaining capacity is roughly 6 years. VDEQ also estimates that in 2002, the remaining permitted CDD landfill capacity for all of Virginia was 7.7 years.[2] It should be noted that sanitary landfills can accept CDD material; however, the additional regulatory requirements of sanitary landfills typically require a much higher disposal fee.

Because of CDD disposal capacity concerns, CDD disposal fees have been increasing. In 2004, Fairfax County contract disposal fees at in-county CDD landfills doubled compared to the previous year.

Table 7-8 shows the available capacity (tons) and remaining life (years) for each of the five CDD landfills that receive City of Falls Church waste.

Table 7-8. CDD Facility Estimated Capacity and Availability, 2002

Facility	County/City	Available capacity (tons)	Annual disposal rate (tons)	Remaining capacity (years)
Hilltop Debris Landfill	Fairfax	1,242,200	138,000	9
Lorton CDD Landfill	Fairfax	5,100,000	927,209	5.5
Rainwater Concrete Co. Landfill	Fairfax	1,121,739	66,260	17
Potomac Landfill	Prince William	662,016	472,257	1.4
Fauquier Co. Corral Farm Landfill	Fauquier	2,044,183	76,030	27
Total		**10,170,000**	**1,680,000**	**6.1**

Source: VDEQ, June 2002.

Assessment of Current and Future Disposal Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated (and disposed) by the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

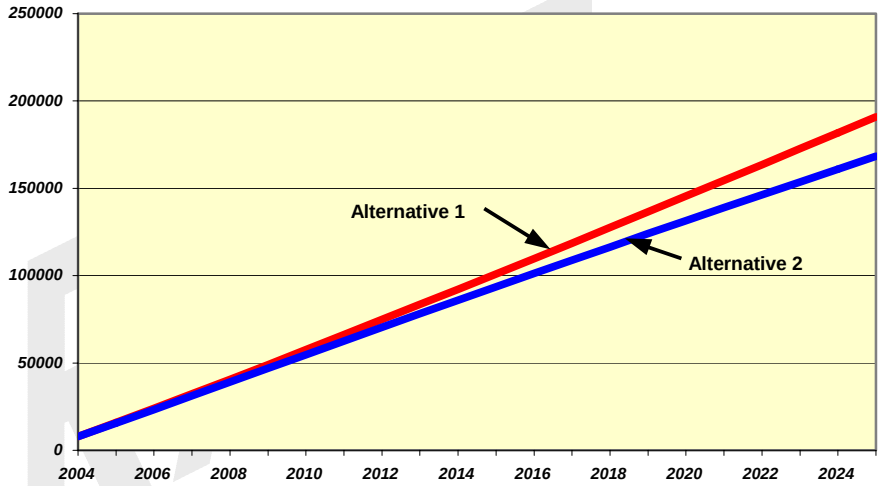
[2] VDEQ, *Solid Waste Managed in Virginia During Calendar Year 2002*, June 2003.

Tables 2-10 and 2-11 of Chapter 2 show the CDD disposal projections for the City of Falls Church over the SWMP planning period for the two projection alternatives. The City projects annual CDD disposal to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025.

The City projects a need of between 168,000 and 191,000 tons of CDD disposal capacity until 2025, *assuming continuation of current waste management practices.*

Figure 7-1 shows the cumulative CDD disposal requirements over the SWMP planning period. The City projects a need of between 168 and 191 thousand tons of disposal capacity to handle City-generated CDD until 2025. ***(Note that these projections assume the continuation of the City's current management practices and conditions.)***

Figure 7-1. Cumulative CDD Disposal Requirements for City of Falls Church, 2004–2025 (tons)



SWMP Actions

Table 7-9 shows the City's SWMP actions for the disposal of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

Table 7-9 City of Falls Church CDD Disposal SWMP Actions

CDD Disposal SWMP Actions
– Continue using current disposal system as the preferred alternative
– Establish agreements with other jurisdictions for alternative disposal